

## CHAPTER 5. BALLOON MEETS AND BALLOON COMPETITIONS

**59. PUBLIC SAFETY.** Just as with other aviation events, the FAA has the responsibility to ensure public safety during the balloon meets or competitions.

**60. BALLOON OPERATIONS.** Manned free balloon flight competitions could result in operations at horizontal and vertical distances less than those required by FAR §§ 91.79(b) and (c).

a. *The ground track of balloons* is accomplished solely by varying altitude to take advantage of different wind directions and velocities. The greatest diversity in the wind directions normally occurs in the first 2,000 to 3,000 feet above the surface.

b. *Balloon pilots use these changes* in wind direction and velocity to demonstrate their navigational skills during competitions by maneuvering the balloon to a predetermined point on the ground. These operations can occur at minimum altitudes less than those prescribed in FAR §§ 91.79(b) and (c) when appropriate limitations are developed to protect the public and the participants.

**61. DESCRIPTION AND TERMINOLOGY.** Appendix 1, Figure 22, is a typical hot air balloon. Appendix 1, Figure 23, is terminology generally associated with balloons.

**62. BALLOON MEETS.** Balloon meets and races are held throughout the country. As ballooning grows, competitive tasks have been refined and standardized. Currently, the FAA's concern is to ensure applicable requirements are met and safety regulations are complied with so that neither members of the public nor ballooning participants are endangered.

a. *Target areas* must be under the control of the event officials. These officials must have adequate manpower to maintain crowd control. Portable "bull horns" or public address systems

are an adequate means for controlling crowd movements or for directing balloonists away from the target area in an emergency.

b. *Balloon landings* are not normally permitted closer than 1,500 feet from the target or goal, although in certain instances, event officials may announce a reduction of this distance to 500 feet for safety considerations. Only members of official recovery crews may be present at the landing site.

c. *For events sanctioned by the various ballooning organizations*, organizers submit a set of competition rules when they apply for a waiver. This is not a regulatory requirement but should be encouraged for the sake of conformity and safety improvement.

### **63. TYPES OF COMPETITIVE TASKS.**

Since wind is the only force that moves a balloon laterally over the ground, competitive tasks are basically exercises in navigation according to wind direction. The winner of a particular task is the balloonist who can best take advantage of changes in wind direction, by ascending and descending, to accomplish the task. Sponsors of ballooning events are encouraged to use "launch directors" for competitive tasks to control staggered launch times and provide additional safety for multiple launches. The Balloon Federation of America (BFA) has provided information on some typical balloon competition tasks which may be conducted at balloon meets. A typical event would task the balloonist to ascend and move from one location to another and drop one or more markers as close to a goal, target, or objective as possible. The BFA has a recommended procedure which establishes minimum distances between target drop marker areas and balloon descent and landing areas. That distance is usually at least 1,500 feet. An immediate landing after an event is at the pilot's discretion.

a. **Pilot Declared Goal (PDG).** In this event, balloonists must define their goals or targets by description and by map reference. The goals are declared in writing and given to a timekeeper. Each pilot flies from the designated launch area and attempts to drop a marker as close as possible to the declared goal. The resultant distance from the declared goal to the marker is then measured. The shortest distance wins. Descent and landing after dropping the marker should be at least 1,500 feet from the goal.

b. **Judge Declared Goal (JDG).** Each pilot ascends from the designated launch area and attempts to drop a marker as close as possible to a goal set by the officials. The resultant distance from the JDG to the marker is then measured. Again, the shortest distance wins. Descent and landing after dropping the marker should be at least 1,500 feet away from the goal.

c. **Multiple Judge Declared Goal (MJDG).** Each pilot flies from the launch area and chooses one of a number of goals set by the officials. The pilot attempts to drop a marker near the goal chosen. The resultant distance from the marker to the goal is measured and the shortest distance wins. Descent and landing after dropping the marker should be at least 1,500 feet away from the goal.

d. **Elbow (ELBO).** In this event, the balloon launch area is situated at the center of two concentric circles. Each balloonist ascends from the launch area and travels in any desired direction. After traveling to a pilot selected point somewhere between the inner and outer circle, a marker is dropped. The takeoff axis is hereby established as the direction from the takeoff point to the point at which the first marker is dropped. Hereafter, each balloonist attempts to achieve a 180° change in direction from the takeoff axis. The greatest change of flight direction with the smallest angle of divergence is best. After traveling at least 5,000 feet from the first marker (but still within the outer circle), a second marker

is dropped. The angle of divergence is then measured in degrees, relative to the takeoff axis.

e. **Hare and Hound (HNH).** The lead balloon, "the hare," takes off several minutes before the rest of the balloons and drops a marker at a designated point. The hare balloon deflates and is removed from the landing area. The marker dropped by the hare balloon becomes the target for the later launched balloons, "the hounds." The hounds try to drop markers as close as possible to the target placed on the ground by the hare balloon. After dropping the marker from each hound balloon, landing is at the pilot's discretion but should be more than 1,500 feet from the target.

f. **Convergent Navigational Task (CNT).** Officials establish a goal, but balloonists find their own launch areas for the attempt to reach the goal. The boundary of the launch area declared by the pilot is the physical boundary of a field or a circle with a 300-foot radius from the inflation point, whichever is less. The officials place a target at the goal 30 minutes before the launch period begins. Each pilot launches and attempts to navigate to the target, and drops a marker. The result is the distance from the target to the marker. The shortest distance wins. After dropping the marker from each hound balloon, descent and landing is at the pilot's discretion but should be more than 1,500 feet from the target.

g. **Fly On Task (FOT).** The pilot declares a goal to fly to after dropping a marker in another task.

h. **Gordon Bennett Memorial (GBM).** The competitors maneuver their balloons a prescribed distance from a target on the ground (scoring area). Through use of the winds, they attempt to maneuver back to the scoring area and drop markers on the target. Standard BFA landing procedures should be observed.

i. **Watership Down.** This is a two-part task. Pilots find their own launch sites and fly

to a target established by the officials. At a specified time before the launch, a hare balloon takes off adjacent to the target established by the officials, then flies on and drops a marker at a designated point. This marker becomes the second target. The hare balloon deflates, and the envelope remains flattened on the ground to serve as a guide to the second target area. Each competing pilot drops a marker as close as possible to the first target (the launch site of the hare balloon). Pilots then fly on to drop a second marker as close as possible to the target marker placed by the hare balloon.

j. **Key Grab.** One of the most popular events for both the participants and the spectators is the key grab. This event usually has a target (generally a tall pole with the keys to a new automobile affixed to the top) in a centralized location. The balloonist must depart from a predetermined distance from the target. The object of the event is to maneuver the balloons (one-by-one) over the target by altitude changes so the pilot can attempt to grab the keys as the balloon goes by the pole. The area around the pole must be completely clear of spectators and under the control of the event officials.

**64. BALLOON COMPETITION EVENT WAIVERS.** To be eligible for a waiver of FAR §§ 91.79(b) and (c), the applicant must prepare and keep current an operations manual that has been approved by the FAA FSDO having jurisdiction over the proposed balloon competition. The contents of the manual are the basis for the issuance of the waiver. The applicant and the participants must comply with the manual contents and requirements.

a. *A waiver of FAR §§ 91.79(b) and (c) for organized free balloon competitions can be issued based on submission of a proper application which contains the proposed operations and contents of the Organized Manned Free Balloon Competition Manual.*

b. *FAR § 91.79 shall be waived only to the extent necessary to accommodate the event, and then only if the waiver allows an acceptable level of safety. Evaluation of the site determines the actual separation distances to be used for a specific event; however, the following minimum distances and special provisions must be observed:*

(1) *FAR § 91.79(b) may be waived to allow flight over a congested area of a city, town, or settlement at an altitude of no less than 500 feet above the highest obstacle within a horizontal radius of 500 feet of the balloon. This section of the regulation may only be waived within a specified maximum distance from the designated launch sites and/or target areas. This designated area must be determined by the sponsor and FAA, and must be clearly delineated in the sponsor's manual before the event. (A scaled map, drawing, and/or aerial photographs should be in the sponsor's manual before the event.) The designated area should be the minimum area necessary to accommodate the specific events planned and should be consistent with the ability of the sponsor to control operations. In addition, if the target area is so small that a normal descent (200 to 300 feet per minute) cannot be made to the target, then a waiver of FAR § 91.79(b) should not be issued.*

(2) *FAR § 91.79(b) may also be waived to allow flight over, but no less than 75 feet from, any open-air assembly of persons (designated spectator area) under the direct control of the sponsor who has been issued the waiver. The balloon must have attained a state of altitude equilibrium at this 75-foot minimum altitude and not be descending while crossing over the designated spectator area.*

(3) *FAR § 91.79(c) may be waived to allow flight over open water or sparsely populated areas no closer than 200 feet to any person, vessel, vehicle, or structure.*

(4) *The target area around the "key grab" event* must be totally clear of spectators and under the control of the event officials. These officials must have adequate manpower to maintain crowd control. Sponsors should either have portable "bull horns" or a public address system to control the crowd movements verbally or to direct the balloonist away from the target area in the event of an emergency. If these precautions are observed, then a waiver of FAR § 91.79(c) can be issued to allow operations closer than 500 feet to the crowd. The event sponsor must establish procedures to ensure that the balloonists will abort the key grab attempt when it becomes apparent that the balloons' ground tracks will not be within the operating area or when a realistic chance for the key is no longer possible. The balloon landing areas must be segregated from the spectators. Only designated members of the recovery crews can be present to assist the balloonist with recovery. All of these requirements must be briefed to all participants before the operations.

**65. BALLOON COMPETITION MANUAL.** The Organized Manned Free Balloon Competition Manual must incorporate FAR §§ 91.79(b) and (c) limitations, as appropriate, to the specific event in a form and manner acceptable to the FAA and the sponsor. The sponsor should reflect the manner of operations under the event waiver as clearly as possible in the manual. The operations manual shall include a list and description of all events, tasks, and races to be included in the waiver. The inspector should encourage the sponsor to place the aircraft operating procedures and other safety-related procedures in a separate section of the manual, which is subject to review and approval by the FAA.

**66. BALLOON CREWMEMBERS.** Only crewmembers may be carried on board any balloon operating under the waiver issued to the sponsor. All crewmembers must be designated by the pilot in command and have been given appropriate training in the conduct of their duties. These designated crewmembers must sign on the

waiver form that they have been briefed, that they understand the limitations of the waiver under which they are operating, and that they are designated crewmembers for the purpose of the specific flight under the waiver. The pilot in command of each balloon using additional crewmembers is responsible for obtaining and keeping such statements.

**67. MAXIMUM WINDSPEED.** The maximum windspeed for launch and at the target zones is mutually determined by the sponsor and the FAA. These limitations shall be placed in the operations manual. The maximum windspeed limitations should be determined considering the local terrain conditions and the competency of the participating airmen. The actual means of determining the windspeed must be mutually agreeable to the FAA and the sponsor. The inspector and/or the sponsor may wish to consider moving the designated spectator area barriers if the windspeed increases.

**68. DESIGNATED SPECTATOR AREA.** The designated spectator area should be maintained at a minimum radius of 200 feet away from the designated or declared goal/target. This 200-foot minimum target area should remain sterile except for officially designated event personnel.

**69. DURATION OF WAIVER.** No operations shall be conducted under this waiver except during the period from sunrise to sunset and during Visual Flight Rules conditions as specified in FAR § 91.105.

**70. LETTERS OF AGREEMENT.** A letter of agreement clearly detailing all responsibilities provides an excellent means of control. This means of control has been successfully used in various cases. For example, the sponsor of the balloon meet outlines the responsibilities he or she assumes, such as crowd control, notification, communication, briefing of participating pilots, etc., in the manual. Air Traffic identifies the services they provide, such as up-to-date weather,

a portable tower, or a direct communication line with the tower.

**71. CARRIAGE OF PASSENGERS FOR HIRE.** Under the provisions of FAR § 135.1(b)(7), persons engaged in carrying passengers for hire using balloons are not subject to FAR Part 135.

**72. MANUAL APPROVAL.** The aircraft operating and other safety-related procedures contained in the balloon competition manual must be approved by the inspector assigned to evaluate it. The approved procedures must be incorporated into the waiver.

**73.-76. RESERVED.**



## CHAPTER 6. PARACHUTING AND PARACHUTISTS

### 77. CERTIFICATE OF AUTHORIZATION.

While many of the activities associated with aviation events frequently require waivers, parachuting or skydiving demonstration jumps do not require waivers. As provided for in FAR Part 105, some of these jumps do require an FAA Form 7711-1, Certificate of Waiver or Authorization. FAR § 105.15 is applicable to jumps over or into congested areas or open-air assemblies of persons. FAR § 105.19 is applicable to jumps in or into control zones with functioning control towers. FAA Form 7711-1 is required for any jump over or into a congested area.

a. *The drift-over provision of FAR § 105.15* permits a jumper to exit an aircraft over something other than a congested area, and with a fully-deployed parachute, drift over a congested area or open-air assembly of persons, and land in an open area. Under these circumstances an FAA Form 7711-1 is not required.

b. *The key to determine if an authorization is required* are the words "over or into." In other words, the drift-over provision does not permit any jump that results in a landing into a congested area or open-air assembly of persons unless the parachutist has obtained an FAA Form 7711-1.

**78. PARACHUTE ASSOCIATIONS/ORGANIZATIONS.** Parachutists who are not members of a recognized parachute organization or the participating branch of a national aero club and who wish to participate in a demonstration or exhibition jump over or into a congested area must present satisfactory evidence of the necessary experience, knowledge, and skill equivalent to that required by the United States Parachute Association (USPA).

a. *If the parachutist is unable to provide this information*, the FAA inspector-in-charge may require a demonstration jump (not over a

congested area) as a prerequisite before approving the request.

b. *The USPA*, located at 1440 Duke Street, Alexandria, VA 22314, telephone (703) 836-3495, has adopted its own safety rules and licensing standards for parachutists, instructors, and jumpmasters. The USPA has pledged to implement a policy of self-policing to assist the FAA in avoiding conflicts with other airspace users and to maintain a high level of safety. Toward this end, the USPA has supplied every FAA FSDO with a brochure of its rules and safety programs and have offered their assistance anytime the FAA encounters problems with a particular club or has questions regarding parachuting.

**79. PARACHUTIST'S COMPETENCE.** The competence of parachutists is extremely important when evaluating the suitability of a landing site.

a. *Holders of USPA Class C and D licenses* have proven themselves to be highly skilled. Anyone holding such a license who has actively participated in the sport within the last 12 months should be competent to participate in any jump where the separation criteria meets or exceeds that established in a Level One landing area. (See paragraph 80a.)

b. *Persons holding a USPA Class D license with a current exhibition (Pro) rating* have demonstrated the additional skills that are necessary to permit exhibition demonstrations in accordance with the separation criteria established in a Level Two landing area. (See paragraph 80b.)

c. *USPA exhibition ratings* are issued to members who have a Class D license and who have accomplished 10 successive jumps into a 10-meter (32-foot) diameter target area in accordance with the following criteria:

(1) *All landings* must be made standing up.

(2) *The size of the canopy* used during the exhibition certification determines the canopy limitation allowed in actual demonstration jumps (i.e., smallest canopy demonstrated).

(3) *Demonstration jumps* must be witnessed by either a safety and training advisor (SATO) or by an instructor/examiner (I/E), and at least two other spectators.

(4) *USPA issues the added exhibition rating* with an expiration date 12 months from the certification date. Members are renewed on the basis of continued demonstration of the original certification requirements.

**80. LANDING AREAS.** USPA divides landing areas into two distinct categories, depending on the demonstrated competency of the parachutists.

a. **Level One.** Parachutists who hold a USPA Class C or D license must select a landing

area that permits the jumper to land no closer than 50 feet from any spectator and does not involve passing over persons on the surface at an altitude of less than 250 feet.

b. **Level Two.** Parachutists who hold a USPA Class D license with an exhibition (Pro) rating and who certify that they shall use a steerable square main and reserve canopy, shall be permitted to exit over or into a congested area. The selected landing area must permit the jumper to land no closer than 15 feet from any spectator and does not involve passing over persons on the surface at an altitude of less than 50 feet.

**81. ALTERNATE LANDING AREAS.** Regardless of the experience of the parachutists, "runoffs" or "escape areas" should be considered. Small target areas may be acceptable when a suitable alternate landing area is available in the event of unexpected conditions.

**82.-86. RESERVED.**



## CHAPTER 7. WAIVER PROVISIONS

### 87. GENERAL PROVISIONS.

a. *Each FAA Form 7711-1, Certificate of Waiver or Authorization*, shall include general and special provisions developed by the issuing FAA FSDO. Many safety provisions are general in nature and are applicable to all aviation events. The FAA FSDO will tailor the general and special provisions to accommodate the sponsor's needs.

b. *Provisions that appear on the waiver* shall be restricted to protective measures, controls, or requirements that are not otherwise specified by the FAR.

c. *Regulatory requirements* (not waived) shall not be included as special provisions.

d. A *sample* of general provisions can be found in Appendix 2.

**88. SPECIAL PROVISIONS.** Special provisions are conditions, requirements, or limitations necessary to protect persons and property on the surface and other users of the national airspace system.

a. *Ensuring Safety.* The special provisions of FAA Form 7711-1 ensure that the aviation event can be conducted without an adverse effect on safety. Every airshow waiver shall contain special provisions to ensure adequate public and non-airshow traffic safety. There may be a wide

variation in the type of special provisions called for.

b. *Use of Special Provisions.* Some events require extensive and highly detailed special provisions, whereas others can be fairly simple. In addition to variation among events, local conditions have much to do with what special provisions are necessary.

(1) *Special provisions shall pertain to* protective measures and control requirements which are not specifically covered by the FAR.

(2) *It may be necessary* to increase one regulatory minimum in order to authorize safe deviation from another.

(3) *In order to permit aerobatic flight* in a control zone or near a busy airport, it might be necessary to increase the minimum visibility requirement to 5 miles.

c. *Responsibility for compliance* with the terms of the waiver issued for aerobatic practice areas rests with the pilot. In cases where the waiver is issued for members of an organization, a designated individual responsible for overseeing compliance with the terms of the waiver should be identified to the FAA.

d. A *sample* of special provisions can be found in Appendix 3.

**89.-92. RESERVED.**

